

MARKETING PLASTICS FROM ELECTRONICS

Tina Patton
Recycling Market Development
(651) 215-0214



Environmental Assistance

PARTNERS



U.S. EPA, Region 5

Wisconsin Department of
Natural Resources



Illinois Department of Commerce
and Economic Opportunity

SONY Electronics, Inc.



Project Description and Objectives

- Recycle black plastic from electronics collected by demanufacturers in Region 5 into new electronics (closed loop)
- Establish unsubsidized domestic recycling program that is economically feasible
- Determine feasibility, understand barriers and opportunities
- Measure reduction in GHGs

BACKGROUND:

1999-2000 Demonstration Project

- Evaluate the feasibility of high-end recovery of engineering plastics
- Partners:
 - Sony Electronics
 - Waste Management Asset Recovery Group
 - Panasonic
 - American Plastics Council



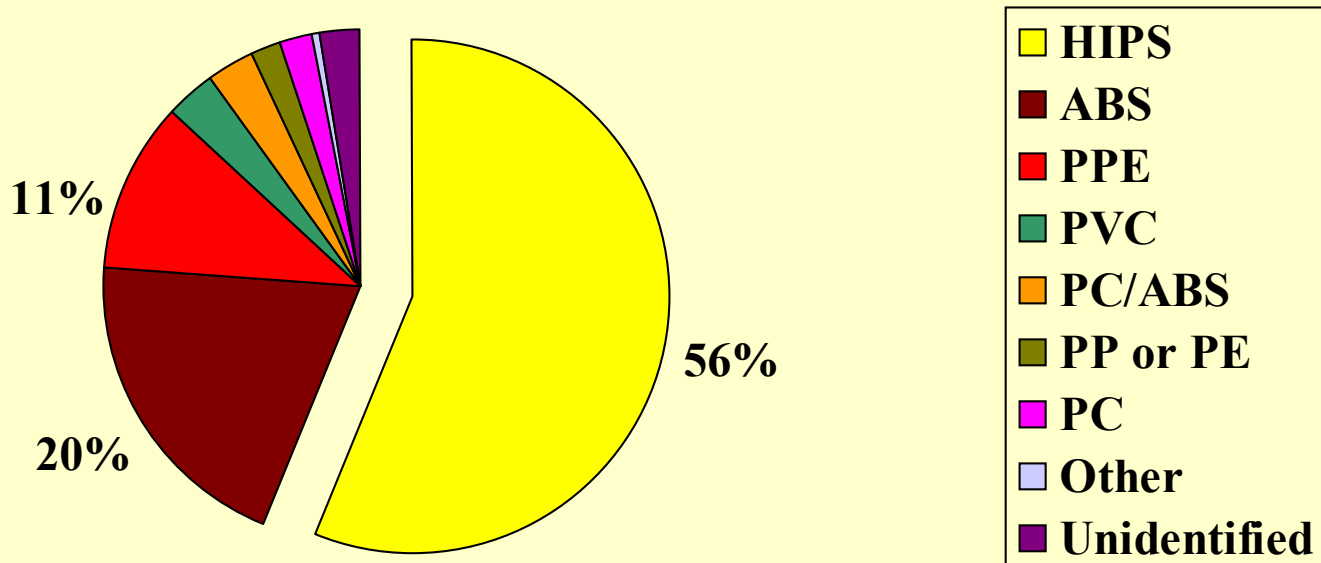
1999-2000 Project (continued)

- Collected electronics at 64 sites in MN, including 3 retail stores
- Demanufactured material, separating plastics into 3 categories (from TVs, computers, and miscellaneous)
- Further separation by processor into resin types



Plastics in Electronics* by Resin Type

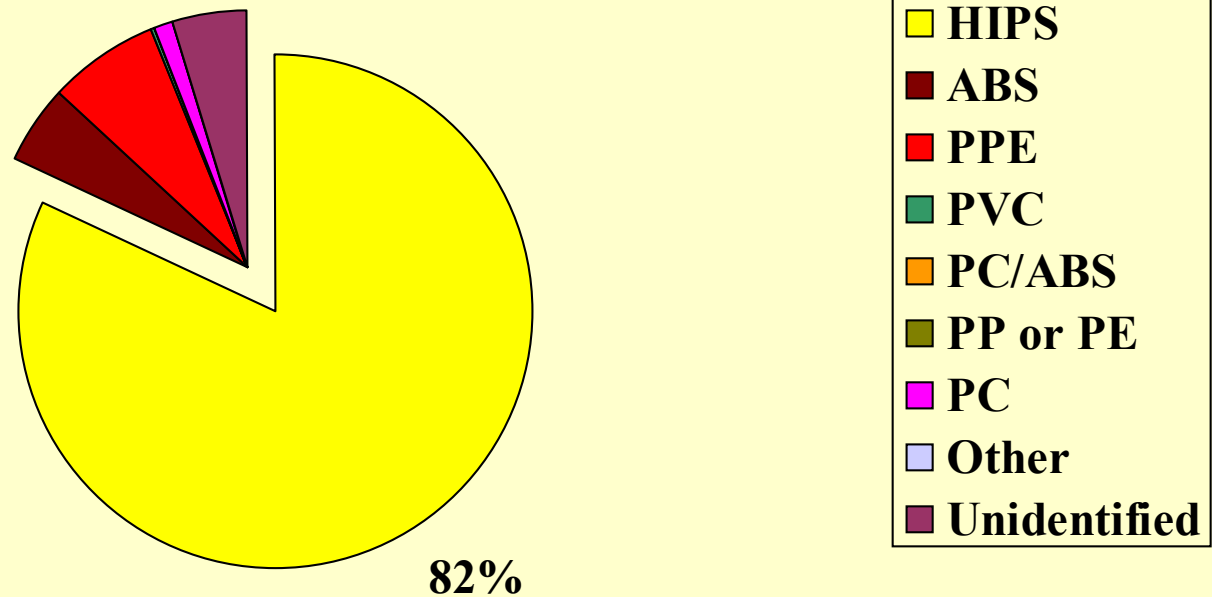
(1999-2000 OEA Study)



*Televisions, computers, and miscellaneous communication and household electronic goods.

Plastics in TVs by Resin Type

(1999-2000 OEA Study)



Selection of FR-HIPS

(1999-2000 Demonstration Project)

- Most abundant, obtained nearly pure stream
- MBA extruded, pelletized, injection-molded and tested
- Properties comparable to virgin
- Conclusion: Consistent quantity and quality = use in high-end applications



Starting with a Market

- Sony agreed to use HIPS recovered from TV housings in Sony TV housings:
 - for 12 to 18 months
 - at least 100,000 pounds per month
 - Material must meet quality standards, including UL certification and specified fire retardant rating



Recycler Participation Survey

- Contacted over 25 demanufacturers (recyclers)
- Five local recyclers initially interested in participating
- Determined minimum amount of black HIPS available monthly ($>100,000$ lbs)

Plastics Processor

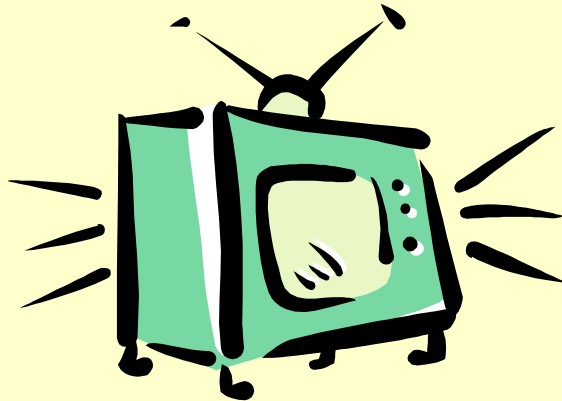
- Issued RFP for processor
- Out of 11 responders, Talco Plastics in CA selected
- Selection based on qualifications, availability of supplemental material, experience working with Sony, & location
- Talco accepted and assessed samples from recyclers

Barriers Identified

- Transportation costs, distance from market
- Handling costs
- Processing costs (additives, testing requirements)
- Price of virgin resin
- Supply

Strengths

- Committed market
- Information
- Experience



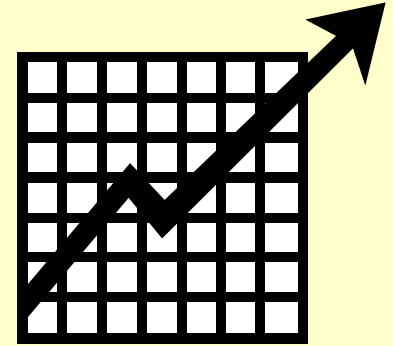
Greenhouse Gases

- Potential 100,000 pounds per month recycled
- If used in asphalt, 16.2 MTCE saved annually
- 96.5 mega-Joules of energy could be saved annually



Recommendations

- Increase demand
- Limit export
- Continue collection efforts
- Vertically integrate recycling
- Study other plastics





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Questions?

Tina Patton

651-215-0214

tina.patton@moea.state.mn.us

Report Available at:

<http://www.moea.state.mn.us/market/e-plastics.cfm>